AMENDMENTS TO THE CLAIMS

Please cancel claims 1-3, 6, 11-25, 28-29, and 31 and amend claims 4, 5, 7-10, 26, 27, 30-33, and 35.

1 - 3. (Cancelled)

4. (Currently Amended) ~~The system of claim 1~~ A data loop extension for a communication system, comprising:

a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line; and

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card wherein the transmission line supports G.shdsl PAM-16 coding and supports a transmission rate of approximately 1.544 Mbps.

5. (Currently Amended) ~~The system of claim 1~~ A data loop extension for a communication system, comprising:

a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line; and

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card wherein the transmission line is a 26 gauge bi-directional single twisted copper pair, and further, wherein the distance between each ADSL link between the line card and the customer premise equipment is approximately 41,000 feet.

6. (Cancelled)

7. (Currently Amended) ~~The system of claim 1 further including~~ A data loop extension for a communication system, comprising:

a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit

configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line;

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card; and

a power supply unit coupled to the line card configured to provide approximately 30 watts to the transmission line.

8. (Currently Amended) ~~The system of claim 1 further including~~ A data loop extension for a communication system, comprising:

a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line;

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card; and

an alarm card unit coupled to the line card for providing alarm information.

9. (Original) The system of claim 8 wherein the alarm information includes information related to data channels out of service.

10. (Currently Amended) ~~The system of claim 1 further including~~ A data loop extension for a communication system, comprising:

a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line;

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card; and

a second repeater coupled between either of the first and second ends of the transmission line and the at least one repeater, wherein the distance between the second repeater and the at least one repeater is approximately 9,000 feet.

11 - 25. (Cancelled)

26. (Currently Amended) ~~The system of claim 23,~~ A data loop extension for a communication system, comprising:

a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line;

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card; and

wherein each of said ADSL links coupled to a respective one of said plurality of customer premise equipments may be configured to support a substantially minimum data rate of approximately 384 kbps and further wherein each of said ADSL links may be configured to instantaneously burst to a data rate of up to approximately 1.544 Mbps.

27. (Currently Amended) ~~The system of claim 1,~~ A data loop extension for a communication system, comprising:

a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line; and

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card wherein said at least one repeater comprises an add/drop repeater.

28 - 29. (Cancelled)

30. (Currently Amended) ~~The system of claim 29~~ A data loop extension for a communication system, comprising:

a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line;

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card;

a data bus coupled to said line card configured receive bit streams of decoded ATM data from said line card;

an ATM switch coupled to a data network; and

an ATM controller coupled to said data bus configured to receive said data bit streams from said data bus, said ATM controller further configured to connect said ATM switch via an ATM link for communication with said network wherein ATM controller is further configured to generate clock and transmission information.

31. (Cancelled)

32. (Currently Amended) ~~The system of claim of claim 29~~ A data loop extension for a communication system, comprising:

a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line;

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card;

a data bus coupled to said line card configured receive bit streams of decoded ATM data from said line card;

an ATM switch coupled to a data network; and

an ATM controller coupled to said data bus configured to receive said data bit streams from said data bus, said ATM controller further configured to connect said ATM switch via an ATM link for communication with said network wherein said ATM switch is configured to perform bandwidth management.

33. (Currently Amended) ~~The system of claim 29~~ A data loop extension for a communication system, comprising:

a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line;

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card;

a data bus coupled to said line card configured receive bit streams of decoded ATM data from said line card;

an ATM switch coupled to a data network; and

an ATM controller coupled to said data bus configured to receive said data bit streams from said data bus, said ATM controller further configured to connect said ATM switch via an ATM link for communication with said network wherein said data bus includes a TDM backplane bus.

34. (Original) The system of claim 33 wherein said TDM backplane maybe 8 bits wide.

35. (Currently Amended) ~~The system of claim 1 wherein said line card includes a plurality of two-wire connections, said system further including~~ A data loop extension for a communication system, comprising:

a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line wherein said line card includes a plurality of two-wire connections;

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card;

a DSLAM including a plurality of ADSL ports, each of said plurality of ADSL ports coupled to a corresponding two-wire connection of said line card, said line card further configured to convert said received ATM data into ADSL data format for transport over said respective two-wire connections to the corresponding ADSL port of said DSALM; and

an ATM switch coupled to a data network, said ATM switch further coupled to said DSALM for connection to said data network.

36. (Original) The system of claim 35 wherein said line card and said DSLAM reside in the same central office.

37. (Original) The system of claim 35 wherein said line card includes four, two-wire connections, and further, DSLAM includes four corresponding ADSL ports.